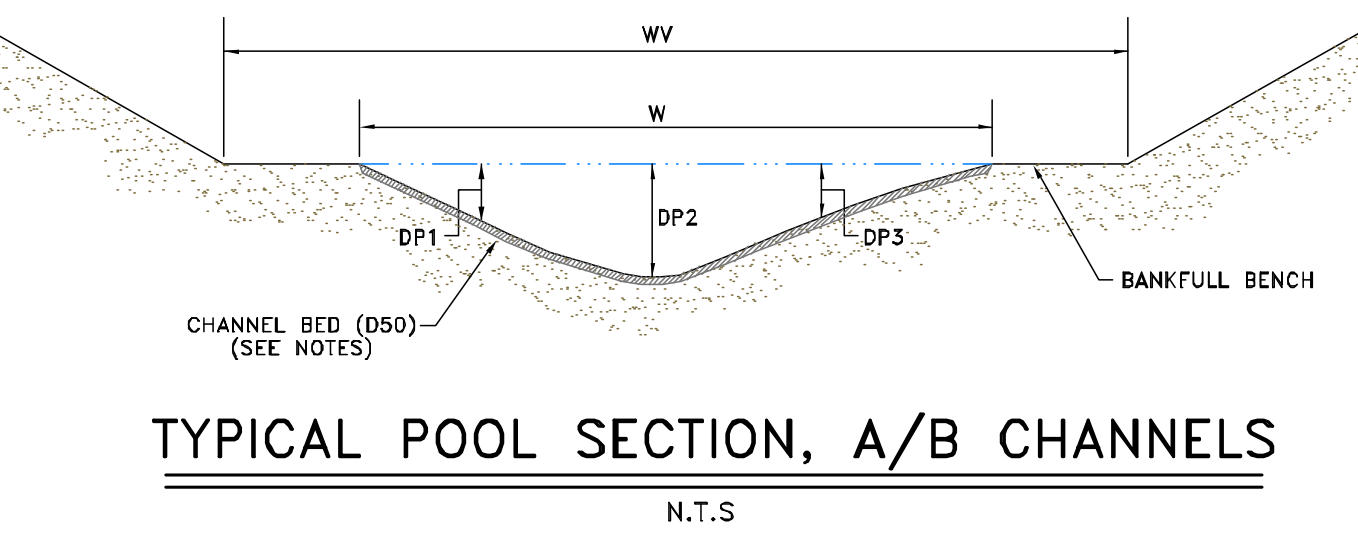
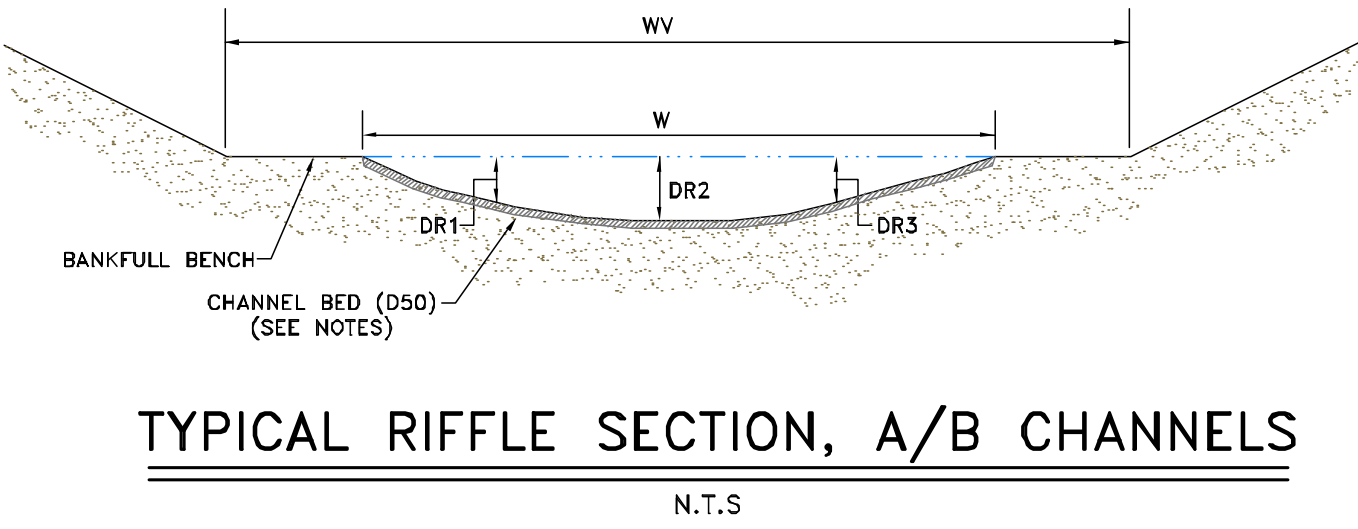


RESTORED STREAM CHANNEL SCHEDULE – A AND B CHANNELS

GENERAL INFORMATION					RIFFLE					POOL					GEOMETRY	
CHANNEL TYPE	AVG. VALLEY SLOPE (%)	W (FT.)	WV (FT.)	D50 * (IN.)	LR (FT.)	DR1 (FT.)	DR2 (FT.)	DR3 (FT.)	SR (%)	LP (FT.)	DP1 (FT.)	DP2 (FT.)	DP3 (FT.)	SP (%)	LM (FT.)	RC (FT.)
RSC-UTLC-1 (0.05 SQ. MI. DRAINAGE AREA) LOONEY CREEK WATERSHED																
A2a+	10.0	3.7	4.8	3.6	3.0-10.8	0.3	0.4-0.7	0.3	11.0-18.0	0.7-3.7	0.7	1.0-1.3	0.7	2.0-6.0	N/A	N/A
A2a+	20.0	3.6	4.7	6.0	2.9-10.5	0.3	0.4-0.7	0.3	22.0-36.0	0.7-3.6	0.7	1.0-1.4	0.7	4.0-12.0	N/A	N/A
RSC-UTLC-2 (0.04 SQ. MI. DRAINAGE AREA) LOONEY CREEK WATERSHED																
A2a+	10.0	3.4	4.4	3.6	2.7-9.9	0.3	0.4-0.6	0.3	11.0-18.0	0.7-3.4	0.6	0.9-1.2	0.6	2.0-6.0	N/A	N/A
A2a+	20.0	3.3	4.3	4.8	2.7-9.6	0.3	0.4-0.7	0.3	22.0-36.0	0.7-3.3	0.8	1.0-1.3	0.8	4.0-12.0	N/A	N/A
RSC-UTLC-3 (0.11 SQ. MI. DRAINAGE AREA) LOONEY CREEK WATERSHED																
A2a+	10.0	4.9	6.4	6.0	3.9-14.3	0.5	0.6-0.9	0.5	11.0-18.0	1.0-4.9	1.0	1.3-1.8	1.0	2.0-6.0	N/A	N/A
A2a+	20.0	4.8	6.2	8.4	3.8-13.9	0.5	0.6-1.0	0.5	22.0-36.0	1.0-4.8	1.0	1.4-1.8	1.0	4.0-12.0	N/A	N/A
RSC-UTLC-4 (0.20 SQ. MI. DRAINAGE AREA) LOONEY CREEK WATERSHED																
A2a+	10.0	6.1	7.8	6.0	4.9-17.7	0.6	0.7-1.2	0.6	11.0-18.0	1.2-6.1	1.4	1.7-2.2	1.4	2.0-6.0	N/A	N/A
A2a+	20.0	6.0	7.8	10.8	4.8-17.3	0.6	0.7-1.2	0.6	22.0-36.0	1.2-6.1	1.4	1.7-2.2	1.4	4.0-12.0	N/A	N/A
RSC-UTLC-5 (0.26 SQ. MI. DRAINAGE AREA) LOONEY CREEK WATERSHED																
A2	5.0	6.9	9.0	6.0	5.5-20.0	0.7	0.8-1.2	0.7	5.5-9.0	1.4-6.9	1.5	1.8-2.3	1.5	1.0-3.0	N/A	N/A
A2a+	10.0	6.7	8.7	8.4	5.4-19.5	0.7	0.8-1.3	0.7	11.0-18.0	1.3-6.7	1.5	1.8-2.4	1.5	2.0-6.0	N/A	N/A
RSC-UTTC-1 (0.08 SQ. MI. DRAINAGE AREA) CALLAHAN CREEK WATERSHED																
A2a+	10.0	4.4	5.7	4.8	3.5-12.7	0.4	0.5-0.8	0.4	11.0-18.0	0.9-4.4	1.0	1.2-1.6	1.0	2.0-6.0	N/A	N/A
A2a+	20.0	4.3	5.6	6.0	3.4-12.4	0.4	0.5-0.9	0.4	22.0-36.0	0.9-4.3	1.0	1.2-1.6	1.0	4.0-12.0	N/A	N/A
RSC-UTPC-1 (0.30 SQ. MI. DRAINAGE AREA) PREACHER CREEK WATERSHED																
A2a+	10.0	7.1	9.2	9.6	5.7-20.5	0.7	0.8-1.3	0.7	11.0-18.0	1.4-7.1	1.6	1.9-2.5	1.6	2.0-6.0	N/A	N/A
A2a+	20.0	6.9	9.0	12.0	5.5-20.0	0.7	0.8-1.4	0.7	22.0-36.0	1.4-6.9	1.7	2.0-2.6	1.7	4.0-12.0	N/A	N/A
RSC-UTPC-2 (0.07 SQ. MI. DRAINAGE AREA) PREACHER CREEK WATERSHED																
A2a+	10.0	4.2	5.5	4.8	3.4-12.2	0.7	0.5-0.8	0.7	11.0-18.0	0.8-4.2	0.9	1.1-1.5	0.9	2.0-6.0	N/A	N/A
A2a+	20.0	4.1	5.3	7.2	3.3-11.8	0.7	0.5-0.8	0.7	22.0-36.0	0.8-4.1	1.0	1.2-1.5	1.0	4.0-12.0	N/A	N/A
RSC-KELLY BRANCH (0.23 SQ. MI. DRAINAGE AREA) KELLY BRANCH WATERSHED																
B3c	1.0	7.4	10.4	0.8	8.5-28.8	0.5	0.6-0.9	0.5	1.4-3.3	5.5-8.1	1.0	1.2-2.4	1.0	0.0-0.2	89-140	30-74
B3	2.0	7.2	10.1	2.2	8.3-28.2	0.6	0.7-0.9	0.6	2.8-6.7	5.4-8.0	1.0	1.2-2.5	1.0	0.1-0.5	87-137	29-72
A2	6.0	6.6	8.6	6.0	5.3-19.1	0.6	0.7-1.2	0.6	6.6-10.8	1.3-6.6	1.4	1.2-3.6	1.4	1.2-3.6	N/A	N/A
A2a+	10.0	6.4	8.3	8.4	5.1-18.7	0.6	0.7-1.2	0.6	11.0-18.0	1.3-6.4	1.5	1.8-2.3	1.5	2.0-6.0	N/A	N/A
A2a+	20.0	6.3	8.2	10.8	5.0-18.2	0.7	0.8-1.3	0.7	22.0-36.0	1.3-6.3	1.5	1.8-2.4	1.5	4.0-12.0	N/A	N/A

NOTES: W = BANKFULL WIDTH, WV = MINIMUM VALLEY FLOOR WIDTH, D50 = MEDIAN STONE SIZE OF CHANNEL BED, LR = RIFFLE LENGTH, DR1-3 = RIFFLE DEPTHS, SR = RIFFLE SLOPE, LP = POOL LENGTH, DP1-3 = POOL DEPTHS, LM = MEANDER LENGTH, RC = RADIUS OF CURVATURE.
* - IF PRESENT, NATIVE STREAM BED MATERIAL SHALL BE USED FOR CHANNEL LINING. ANY SEDIMENT DEPOSITION RESULTING FROM UPSTREAM DISTURBANCES SHOULD BE REMOVED FROM THE CHANNEL, PLACED IN AN UPLAND AREA, AND REVEGETATED IN ACCORDANCE WITH THE APPROVED VDWLR PLAN.



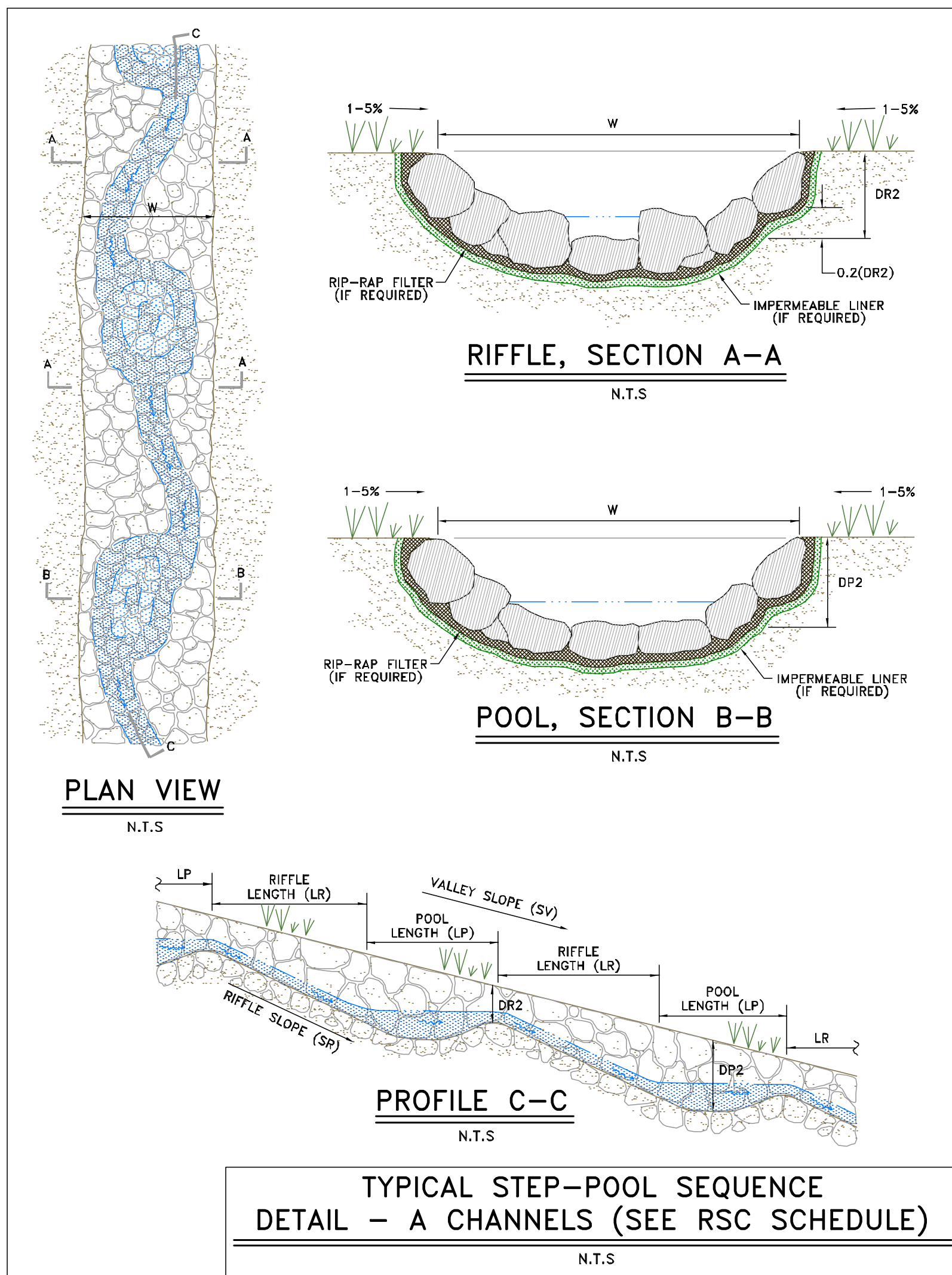
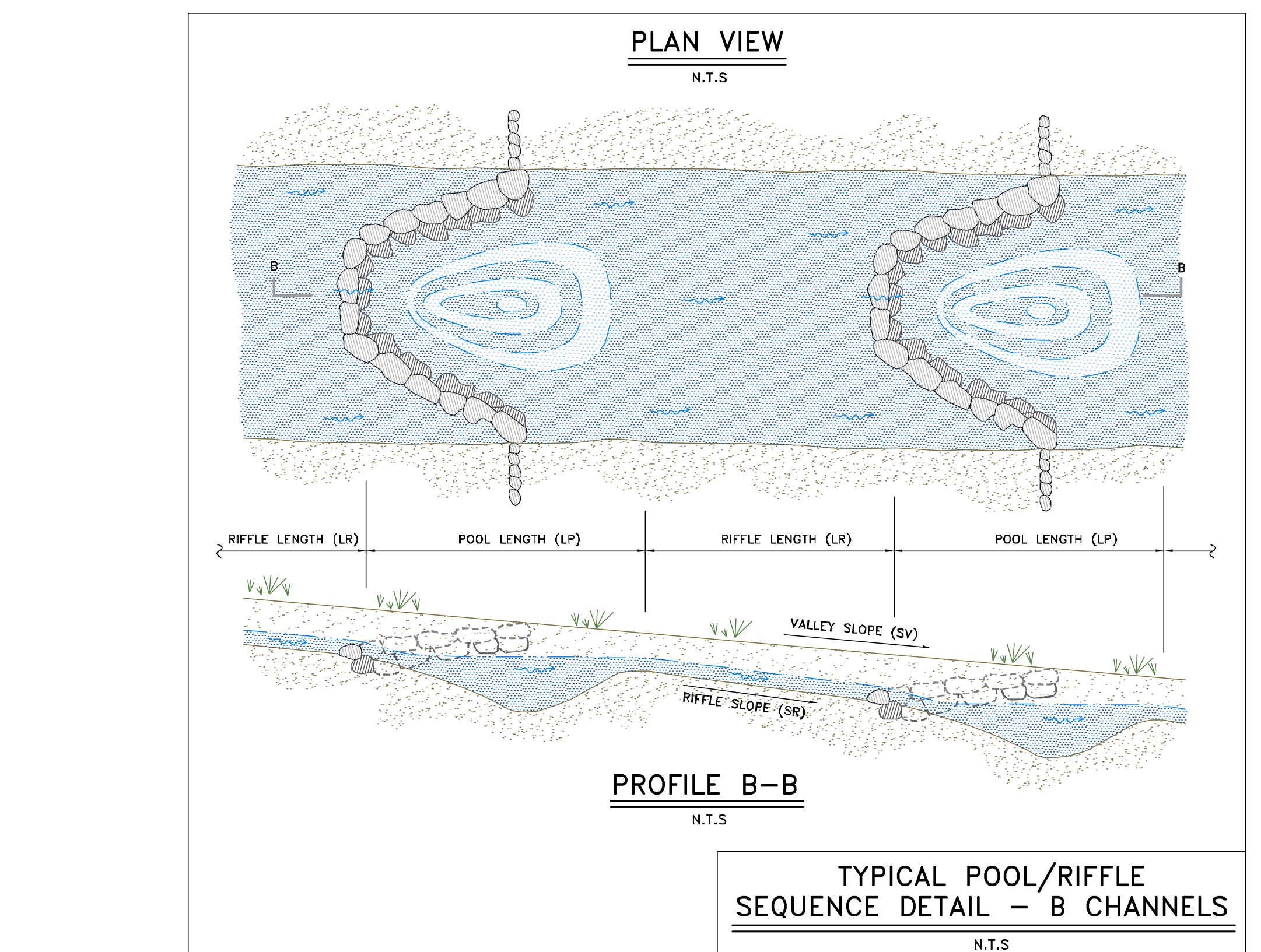
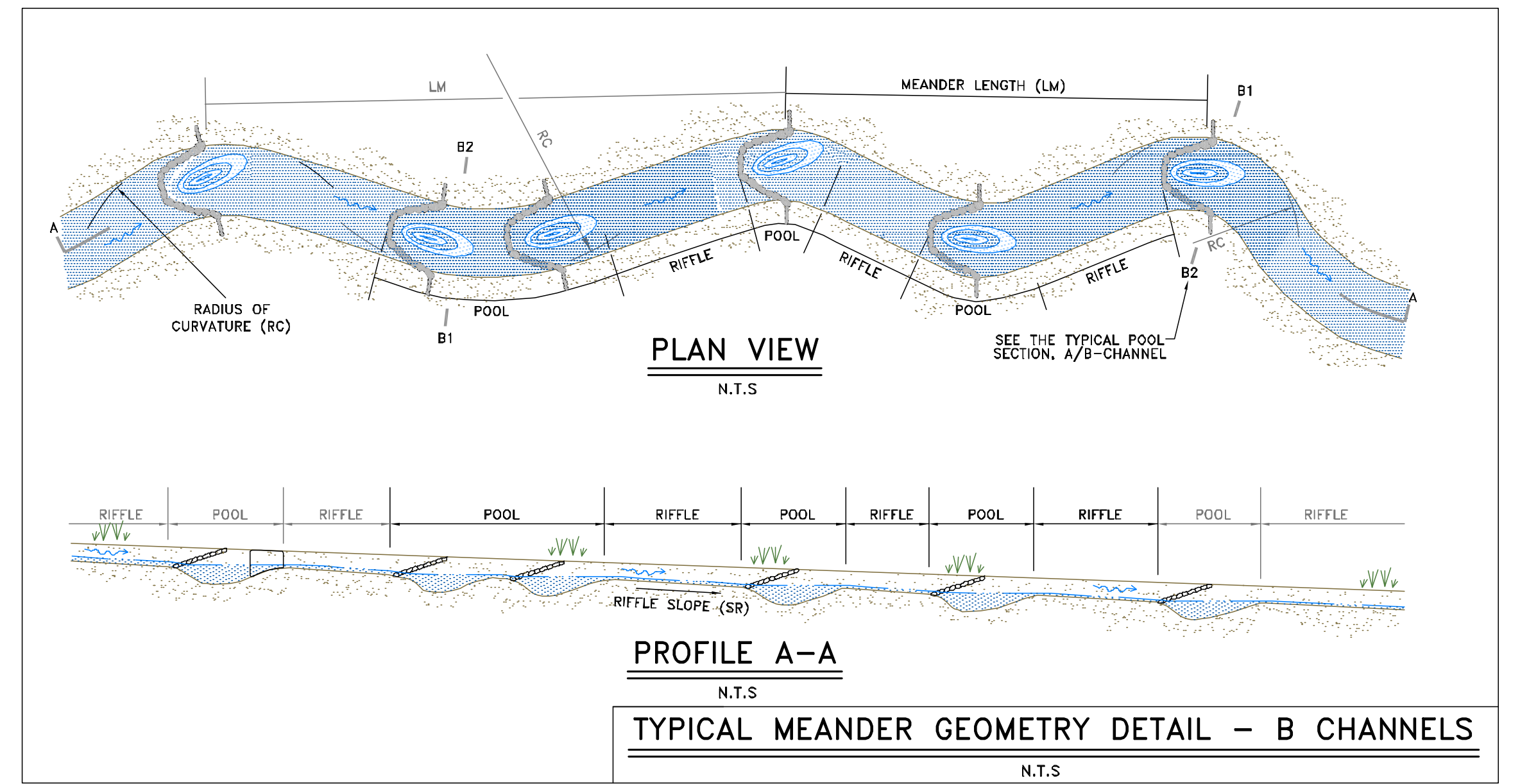
GENERAL CONSTRUCTION NOTES (A AND B CHANNELS)

- ALL RESTORED STREAM CHANNELS LOCATED IN SPOIL SHALL BE UNDERCUT A MINIMUM OF 2 FEET AND LINED WITH AN IMPERMEABLE MATERIAL, SUCH AS MINERAL, NATIVE SOIL, OR A NON-ACID AND NON-TOXIC SHALE UNIT. ALL MATERIAL PLACED IN THIS MANNER SHALL BE PLACED IN 6 INCH LIFTS AND THOROUGHLY COMPACTED.
- ALL RESTORED STREAM CHANNELS SHOULD BE CONSTRUCTED IN A MANNER WHICH ENSURES POSITIVE DRAINAGE FROM THE VALLEY SIDE SLOPES. A SLOPE OF ONE TO FIVE (1-5%) PERCENT TOWARD THE STREAM CHANNEL IS REQUIRED FOR TYPE A CHANNELS.
- ALL TYPE A RESTORED STREAM CHANNELS LOCATED IN SPOIL SHALL BE PROTECTED ALONG THEIR ENTIRE LENGTH BY A RIP-RAP BLANKET. THIS BLANKET SHALL BE USED AS A FILTER MATERIAL TO PREVENT EROSION OF THE SPOIL MATERIAL UNDERLYING THE RESTORED STREAM CHANNEL. THE FILTER SHALL HAVE A D50 LESS THAN 0.5 FT. AND A BLANKET THICKNESS OF 1.3 (D50). THIS RIP-RAP FILTER IS NOT REQUIRED FOR TYPE B CHANNELS.
- CAPE SHOULD BE TAKEN TO ENSURE THE D50 OF THE CHANNEL BED MATERIAL IS NEARLY EQUIVALENT TO, BUT GREATER THAN, THE D50 SPECIFIED IN THE RESTORED STREAM CHANNEL SCHEDULE. IF PRESENT, NATIVE STREAM BED MATERIAL SHALL BE USED FOR CHANNEL LINING. ANY SEDIMENT DEPOSITION RESULTING FROM UPSTREAM DISTURBANCES SHALL BE REMOVED FROM THE CHANNEL, PLACED IN AN UPLAND AREA, AND REVEGETATED IN ACCORDANCE WITH THE APPROVED VDWLR PLAN.
- DIMENSIONS DEPICTED ON ALL DETAILS ARE TAKEN FROM THE BANKFULL ELEVATION, I.E. THE TOP OF THE RESTORED STREAM CHANNEL, AND DEMONSTRATE DEPTHS/WIDTHS TO FINISHED GRADE.
- WHENEVER POSSIBLE, STRUCTURE SPACING SHOULD BE SUCH THAT THE RESTORED STREAM REACH TIES INTO THE EXISTING, UNDISTURBED REACH AT A POOL. THIS WILL ENSURE LOWER VELOCITIES AT TRANSITION POINTS.
- FOLLOWING COMPLETION OF CONSTRUCTION, ALL POOLS SHALL BE INSPECTED FOR EVIDENCE OF EXCESSIVE SEDIMENT DEPOSITION AND REPAIRED AS NECESSARY. THESE POOLS ARE ESSENTIAL TO ESTABLISHING A STABLE STREAM, AS THEY BOTH DISSIPATE ENERGY AND PROVIDE HABITAT FOR AQUATIC LIFE.

CROSS VANE SCHEDULE – B CHANNELS

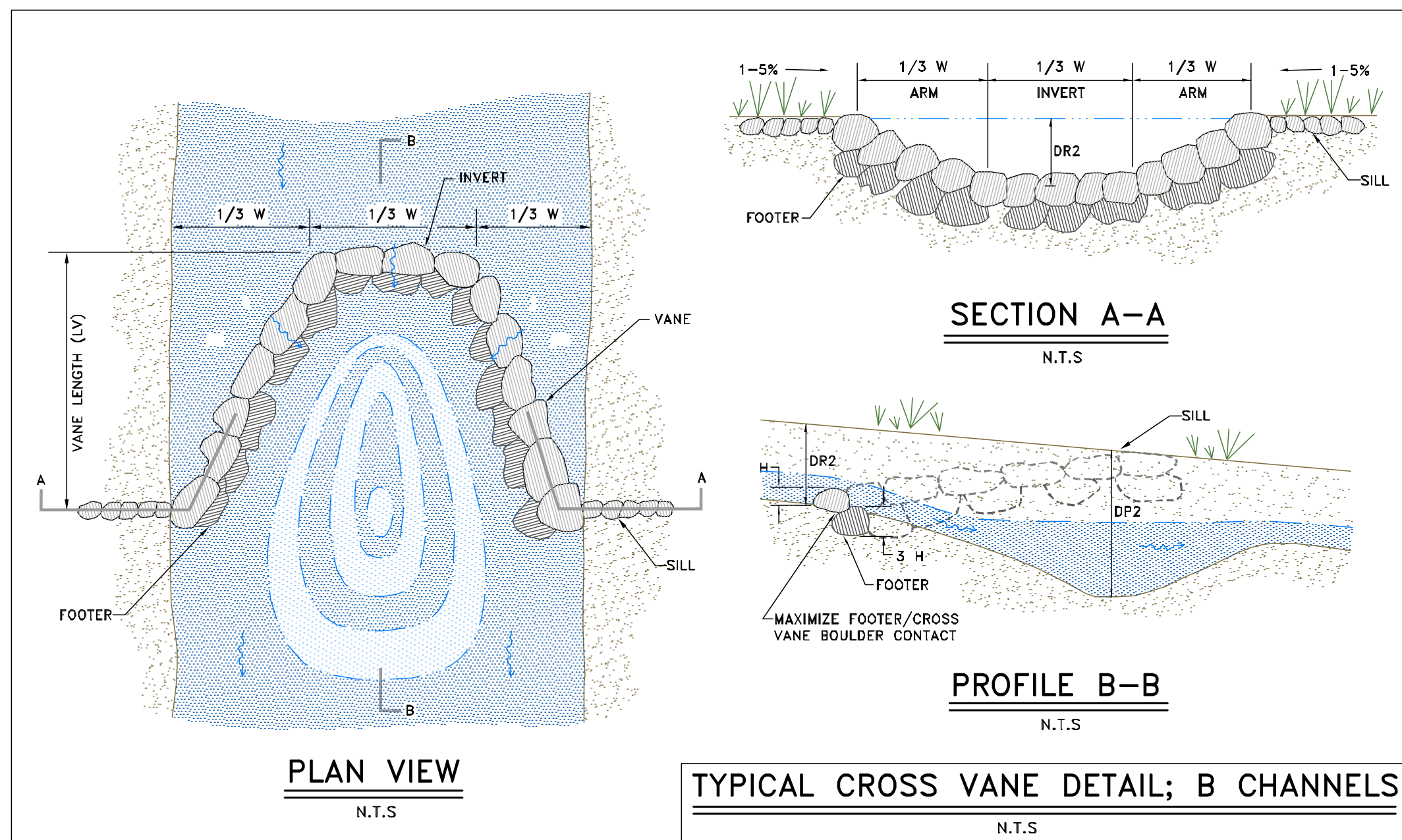
CROSS VANE							
AVG. VALLEY SLOPE (%)	W (FT.)	LV (FT.)	H (FT.)	DR2 (FT.)	DP2 (FT.)	BOULDER SIZE (FT.)	
RSC-KELLY BRANCH (0.23 SQ. MI.)							
1.0	7.4	6.8	0.2	0.6-0.9	1.2-2.4	2.3	
2.0	7.2	6.6	0.2	0.7-0.9	1.2-2.5	2.7	

NOTES: W = BANKFULL WIDTH, LV = VANE LENGTH, H = INVERT PROTRUSION HEIGHT, DR2 = INVERT DEPTH, DP2 = POOL DEPTH, BOULDER SIZE = VANE/INVERT STONE SIZE



STEP-POOL (TYPE A) RESTORED STREAMS – CONSTRUCTION NOTES

- THE STEP-POOL SEQUENCE DETAIL APPLIES TO RESTORED STREAM CHANNELS DESIGNATED AS TYPE A CHANNELS.
- THE MEDIAN DIAMETER (D50) OF RIP-RAP UTILIZED TO CONSTRUCT THE STEP-POOL SYSTEM IS SPECIFIED ON THE RESTORED STREAM CHANNEL SCHEDULE. RIP-RAP SHALL BE PLACED IN AN UPSTREAM DIRECTION, ALLOWING EACH BOULDER TO ACT AS A FOOTER (SUPPORT) FOR THE NEXT BOULDER UPSTREAM, AS DEPICTED ON THE TYPICAL STEP-POOL SEQUENCE DETAIL.
- WHERE THE PROPOSED CHANNEL IS LOCATED IN SPOIL, SMALLER RIP-RAP (D50 LESS THAN 0.5 FT.) SHALL BE USED AS A FILTER MATERIAL TO PREVENT EROSION OF THE BACKFILL MATERIAL UNDERLYING THE RESTORED STREAM CHANNEL. THIS FILTER MATERIAL SHALL HAVE A BLANKET THICKNESS OF 1.3(D50).
- WHENEVER POSSIBLE, STEP-POOL RESTORED STREAM REACHES OF VARYING SLOPES SHOULD BE CONNECTED AT A POOL.



- ### CROSS VANES – CONSTRUCTION NOTES
- THE ARMS OF THE CROSS VANE SHALL EXTEND FROM THE CENTER THIRD OF THE CHANNEL, I.E. THE CROSS VANE INVERT, UPWARD ALONG THE CHANNEL SIDES TO THE BANKFULL ELEVATION. THE CROSS VANE INVERT SHALL BE INSTALLED ACROSS THE CENTER THIRD OF THE CHANNEL APPROXIMATELY PERPENDICULAR TO THE DIRECTION OF FLOW.
 - THE DIAMETER OF BOULDERS UTILIZED FOR CROSS VANE CONSTRUCTION AND FOOTERS ARE SHOWN ON THE CROSS VANE SCHEDULE. THE TOP OF THE INVERT BOULDER SHALL BE SET AT A HEIGHT (>) ABOVE THE RESTORED STREAM CHANNEL BOTTOM AS SHOWN ON THE CROSS VANE DETAIL AND AND SPECIFIED ON THE CROSS VANE SCHEDULE.
 - THE FOOTERS SHOULD PROVIDE A FOUNDATION ADEQUATE